AMENDMENT TO THE CLAIMS

Upon entry of the present amendment, the status of the claims will be as is shown below. This listing of claims replaces all previous versions and listings of claims in the present application.

1. (Currently Amended) A method of managing production quantity in a distribution system where products shipped from at least one factory are stocked in a single delivery center at every predetermined cycle and then supplied to customers from the single delivery center, the method being performed by execution of computer readable program code by at least one processor of at least one computer system ~~a computer~~ and comprising:

determining, using at least one of the processors, a standard inventory quantity of products to be stocked in the single delivery center for a time of at least one predetermined future cycle based on a shipment record of the single delivery center, the determining a standard inventors quantity including:

determining, using at least one of the processors, a first approximation curve of variations of a shipment quantity of the single delivery center based on the shipment record of the single delivery center, determining a gradient of the shipment quantity of the single delivery center for a current cycle t based on the determined approximation curve, and determining a (t+1)-th cycle standard inventory quantity of the single delivery center based on the determined gradient;

determining, using at least one of the processors, a second approximation curve of variations of a shipment quantity of the single delivery center based on the shipment record of the single delivery center and said (t+1)-th cycle expected shipment quantity of the single delivery center;

determining a gradient of the shipment quantity of the single delivery center for the (t+1)-th cycle based on the determined second approximation curve;

determining a (t+2)-th cycle standard inventory quantity of the single delivery center based on the determined gradient for the (t+1)-th cycle;

determining a (t+2)-th cycle expected shipment quantity of the single delivery center and a (t+2)-th cycle standard inventory quantity of the at least one factory based on said determined (t+2)-th cycle standard inventory quantity of the single delivery center;

wherein said (t+2)-th cycle standard inventory quantity of the single delivery center dSI(t+2) is determined for each product according to:

$$dSI(t+2) = dSI(t+1) + b \times \Omega$$

where "dSI(t+1)" represents said (t+1)-th cycle standard inventory quantity of the single delivery center, "b" represents the determined gradient for the (t+1)-th cycle, and Ω represents a factor which is predetermined according to a product type;

determining a (t+1)-th cycle shipment quantity of the at least one factory based on said (t+2)-th cycle standard inventory quantity of the single delivery center, said (t+1)-th cycle standard inventory quantity of the single delivery center, an actual inventory quantity of the single delivery center for an end of the current cycle t, and a standard inventory quantity of the single delivery center for the current cycle t;

determining, using at least one of the processors, a third approximation curve of variations of the shipment quantity of the single delivery center based on said (t+1)-th cycle and (t+2)-th cycle expected shipment quantities of the single delivery center;

determining a gradient of the shipment quantity of the single delivery center for the (t+2)-th cycle based on the determined third approximation curve;

determining a (t+3)-th cycle standard inventory quantity of the single delivery center based on the determined gradient for the (t+2)-th cycle;

determining a (t+3)-th cycle expected shipment quantity of the single delivery center and a (t+3)-th cycle standard inventory quantity of the at least one factory based on said determined (t+3)-th cycle standard inventory quantity of the single delivery center;

wherein said (t+3)-th cycle standard inventory quantity of the single delivery center dSI(t+3) is determined for each product according to:

$$dSI(t+3) = dSI(t+2) + c \times \Omega$$

where "c" represents the determined gradient for the (t+2)-th cycle;

determining a (t+2)-th cycle expected assembly quantity of the at least one factory based on said (t+3)-th cycle standard inventory quantity of the single delivery center, said (t+1)-th cycle expected shipment quantity of the single delivery center, said (t+2)-th cycle expected shipment quantity of the single delivery center, said actual inventory quantity of the single delivery center for the end of the current cycle t, said determined (t+1)-th cycle shipment quantity of the at least one factory, and a shipment quantity of the at least one factory for the current cycle t;

determining, using at least one of the processors, a total assembly quantity of products to be assembled by the at least one factory for a time of at least one future predetermined cycle based on said determined standard inventory quantity of the single delivery center and an actual inventory quantity of the at least one factory;

determining an (t+1)-th cycle expected shipment quantity of the single delivery center based on said determined (t+1)-th cycle standard inventory quantity of the single delivery center

and determining a (t+1)-th cycle standard inventory quantity of the at least one factory based on said determined (t+1)-th cycle standard inventory quantity of the single delivery center;

wherein each of said (t+1)-th cycle expected shipment quantity of the single delivery center and said (t+1)-th cycle standard inventory quantity of the at least one factory is determined by multiplying said (t+1)-th cycle standard inventory quantity of the single delivery center by a factor.

2. (Previously Presented) The method according to claim 1,

wherein the at least one factory includes a plurality of factories that produce the same product,

wherein, with regard to the same product, said total assembly quantity is determined for each of the plurality of factories according a predetermined production proportion.

3. (Previously Presented) The method according to claim 1,

wherein said determining a standard inventory quantity includes:

determining an approximation curve of variations of a shipment quantity of the single delivery center based on the shipment record of the single delivery center; and

determining said standard inventory quantity of the single delivery center for the time one or more predetermined future cycles based on the determined approximation curve.

4. (Cancelled)

5. (Previously Presented) The method according to claim 1,

wherein said (t+1)-th cycle standard inventory quantity of the single delivery center dSI(t+1) is determined for each product according to:

$$dSI(t+1) = dSI(t) + a \times \Omega$$

where "dSI(t)" represents a standard inventory quantity for a current cycle t, "a" represents the determined gradient, and Ω represents a factor which is predetermined according to a product type.

6 - 8. (Cancelled)

9. (Previously Presented) The method according to claim 1, wherein the factor is 1/2.

10 - 15. (Cancelled)

16. (Previously Presented) The method according to claim 1, further comprising:

determining a (t+1)-th cycle total assembly quantity of the at least one factory by adding a (t+1)-th cycle adjustment assembly quantity determined based on the actual inventory quantity of the at least one factory to a (t+1)-th cycle expected assembly quantity of the at least one factory which has been determined at a (t-1)-th cycle.

17. (Previously Presented) The method according to claim1, further comprising:

determining an actual inventory quantity of the at least one factory for a start of the (t+1)-th cycle based on an actual inventory quantity of the at least one factory for an end of the current cycle t;

determining a (t+1)-th cycle adjustment assembly quantity based on said (t+1)-th cycle standard inventory quantity of the at least one factory, a (t+1)-th cycle expected assembly quantity of the at least one factory which has been determined at the (t-1)-th cycle, said determined actual inventory quantity of the at least one factory for the start of the (t+1)-th cycle, and said (t+1)-th cycle shipment quantity of the at least one factory; and

determining a (t+1)-th cycle total assembly quantity of the at least one factory by adding said (t+1)-th cycle adjustment assembly quantity to said (t+1)-th cycle expected assembly quantity of the at least one factory.

18. (Original) The method according to claim 1, wherein the predetermined cycle is a week.

19. (Previously Presented) A computer program product to be executed by a computer to perform a method of managing production quantity in a distribution system where products shipped from at least one factory are stocked in a single delivery center at every predetermined cycle and then supplied to customers from the single delivery center, the method comprising:

determining a standard inventory quantity of products to be stocked in the single delivery center for a time of at least one predetermined future cycle based on a shipment record of the single delivery center the determining a standard inventors quantity including:

determining a first approximation curve of variations of a shipment quantity of the single delivery center based on the shipment record of the single delivery center, determining a gradient of the shipment quantity of the single delivery center for a current cycle t based on the

determined approximation curve and determining a (t+1)-th cycle standard inventory quantity of the single delivery center based on the determined gradient;

determining a second approximation curve of variations of a shipment quantity of the single delivery center based on the shipment record of the single delivery center and said (t+1)-th cycle expected shipment quantity of the single delivery center;

determining a gradient of the shipment quantity of the single delivery center for the (t+1)-th cycle based on the determined second approximation curve;

determining a (t+2)-th cycle standard inventory quantity of the single delivery center based on the determined gradient for the (t+1)-th cycle;

determining a (t+2)-th cycle expected shipment quantity of the single delivery center and a (t+2)-th cycle standard inventory quantity of the at least one factory based on said determined (t+2)-th cycle standard inventory quantity of the single delivery center;

wherein said (t+2)-th cycle standard inventory quantity of the single delivery center dSI(t+2) is determined for each product according to:

$$dSI(t+2) = dSI(t+1) + b \times \Omega$$

where "dSI(t+1)" represents said (t+1)-th cycle standard inventory quantity of the single delivery center, "b" represents the determined gradient for the (t+1)-th cycle, and Ω represents a factor which is predetermined according to a product type;

determining a (t+1)-th cycle shipment quantity of the at least one factory based on said (t+2)-th cycle standard inventory quantity of the single delivery center, said (t+1)-th cycle standard inventory quantity of the single delivery center, an actual inventory quantity of the single delivery center for an end of the current cycle t, and a standard inventory quantity of the single delivery center for the current cycle t;

determining a third approximation curve of variations of the shipment quantity of the single delivery center based on said (t+1)-th cycle and (t+2)-th cycle expected shipment quantities of the single delivery center;

determining a gradient of the shipment quantity of the single delivery center for the (t+2)-th cycle based on the determined third approximation curve;

determining a (t+3)-th cycle standard inventory quantity of the single delivery center based on the determined gradient for the (t+2)-th cycle;

determining a (t+3)-th cycle expected shipment quantity of the single delivery center and a (t+3)-th cycle standard inventory quantity of the at least one factory based on said determined (t+3)-th cycle standard inventory quantity of the single delivery center;

wherein said (t+3)-th cycle standard inventory quantity of the single delivery center dSI(t+3) is determined for each product according to:

$dSI(t+3) = dSI(t+2) + c \times \Omega$

where "c" represents the determined gradient for the (t+2)-th cycle;

determining a (t+2)-th cycle expected assembly quantity of the at least one factory based on said (t+3)-th cycle standard inventory quantity of the single delivery center, said (t+1)-th cycle expected shipment quantity of the single delivery center, said (t+2)-th cycle expected shipment quantity of the single delivery center, said actual inventory quantity of the single delivery center for the end of the current cycle t, said determined (t+1)-th cycle shipment quantity of the at least one factory, and a shipment quantity of the at least one factory for the current cycle t;

determining an assembly quantity of products to be assembled by the at least one factory for a time of at least one predetermined future cycle based on said determined standard inventory quantity and an actual inventory quantity of the at least one factory; and

determining an (t+1)-th cycle expected shipment quantity of the single delivery center based on said determined (t+1)-th cycle standard inventory quantity of the single delivery center and determining a (t+1)-th cycle standard inventory quantity of the at least one factory based on said determined (t+1)-th cycle standard inventory quantity of the single delivery center;

wherein each of said (t+1)-th cycle expected shipment quantity of the single delivery center and said (t+1)-th cycle standard inventory quantity of the at least one factory is determined by multiplying said (t+1)-th cycle standard inventory quantity of the single delivery center by a factor.

20. (Previously Presented) A production quantity management system for managing production quantity in a distribution system where products shipped from at least one factory are stocked in a single delivery center at every predetermined cycle and then supplied to customers from the single delivery center, the system comprising:

a plurality of storing systems that are respectively located in the single delivery center and the at least one factory to store information concerning an inventory and a shipment of the single delivery center and the at least one factory, respectively; and

a managing center that includes:

a calculating system that determines a standard inventory quantity of products to be stocked in the single delivery center for a time of at least one future predetermined cycle based

on a shipment record of the single delivery center and the information obtained from said plurality storing system, wherein said calculating system determines:

a first approximation curve of variations of a shipment quantity of the single delivery center based on the shipment record of the single delivery center, determines a gradient of the shipment quantity of the single delivery center for a current cycle t based on the determined approximation curve, and determines a (t+1)-th cycle standard inventory quantity of the single delivery center based on the determined gradient;

determines a second approximation curve of variations of a shipment quantity of the single delivery center based on the shipment record of the single delivery center and said (t+1)-th cycle expected shipment quantity of the single delivery center;

determines a gradient of the shipment quantity of the single delivery center for the (t+1)-th cycle based on the determined second approximation curve;

determines a (t+2)-th cycle standard inventory quantity of the single delivery center based on the determined gradient for the (t+1)-th cycle;

determines a (t+2)-th cycle expected shipment quantity of the single delivery center and a (t+2)-th cycle standard inventory quantity of the at least one factory based on said determined (t+2)-th cycle standard inventory quantity of the single delivery center;

determines said (t+2)-th cycle standard inventory quantity of the single delivery center dSI(t+2) for each product according to:

$$dSI(t+2) = dSI(t+1) + b \times \Omega$$

where "dSI(t+1)" represents said (t+1)-th cycle standard inventory quantity of the single delivery center, "b" represents the determined gradient for the (t+1)-th cycle, and Ω represents a factor which is predetermined according to a product type;

determines a (t+1)-th cycle shipment quantity of the at least one factory based on said (t+2)-th cycle standard inventory quantity of the single delivery center, said (t+1)-th cycle standard inventory quantity of the single delivery center, an actual inventory quantity of the single delivery center for an end of the current cycle t, and a standard inventory quantity of the single delivery center for the current cycle t;

determines a third approximation curve of variations of the shipment quantity of the single delivery center based on said (t+1)-th cycle and (t+2)-th cycle expected shipment quantities of the single delivery center;

determines a gradient of the shipment quantity of the single delivery center for the (t+2)-th cycle based on the determined third approximation curve;

determines a (t+3)-th cycle standard inventory quantity of the single delivery center based on the determined gradient for the (t+2)-th cycle; and

determines a (t+3)-th cycle expected shipment quantity of the single delivery center and a (t+3)-th cycle standard inventory quantity of the at least one factory based on said determined (t+3)-th cycle standard inventory quantity of the single delivery center;

determines said (t+3)-th cycle standard inventory quantity of the single delivery center dSI(t+3) for each product according to:

$dSI(t+3) = dSI(t+2) + c \times \Omega$

where "c" represents the determined gradient for the (t+2)-th cycle.

determines a (t+2)-th cycle expected assembly quantity of the at least one factory based on said (t+3)-th cycle standard inventory quantity of the single delivery center, said (t+1)-th cycle expected shipment quantity of the single delivery center, said (t+2)-th cycle expected shipment quantity of the single delivery center, said actual inventory quantity of the single

delivery center for the end of the current cycle t, said determined (t+1)-th cycle shipment quantity of the at least one factory, and a shipment quantity of the at least one factory for the current cycle t; and

a management system that determines a total assembly quantity of products to be assembled by the at least one factory for a time of at least one predetermined future cycle based on said determined standard inventory quantity of the single delivery center and an actual inventory quantity of the at least one factory, and that sends the determined total assembly quantity to the at least one factory,

wherein said calculating system further determines an (t+1)-th cycle expected shipment quantity of the single delivery center based on said determined (t+1)-th cycle standard inventory quantity of the single delivery center and determines a (t+1)-th cycle standard inventory quantity of the at least one factory based on said determined (t+1)-th cycle standard inventory quantity of the single delivery center, and

wherein said calculating system determines each of said (t+1)-th cycle expected shipment quantity of the single delivery center and said (t+1)-th cycle standard inventory quantity of the at least one factory by multiplying said (t+1)-th cycle standard inventory quantity of the single delivery center by a factor.

21. (Previously Presented) The production quantity management system according to claim 20,

wherein the at least one factory includes a plurality of factories,

wherein with regard to a predetermined product, said management system determines the total assembly quantity for each of the plurality of factories according a number of the plurality

of factories and a predetermined production proportion, and sends the determined total assembly quantities to the respective factories.

22. (Previously Presented) The production quantity management system according to claim 20,

wherein said calculating system determines an approximation curve of variations of a shipment quantity of the single delivery center based on the shipment record of the single delivery center, and determines said standard inventory quantity of the single delivery center for the time one or more predetermined future cycles based on the determined approximation curve.

23. (Cancelled)

24. (Previously Presented) The production quantity management system according to claim 20,

wherein said calculating system determines said (t+1)-th cycle standard inventory quantity of the single delivery center dSI(t+1) for each product according to:

$$dSI(t+1) = dSI(t) + a \times \Omega$$

where "dSI(t)" represents a standard inventory quantity for a current cycle t, "a" represents the determined gradient, and Ω represents a factor which is predetermined according to a product type.

25. - 27. (Cancelled)

28. (Previously Presented) The production quantity management system according to claim 20, wherein the factor is 1/2.

29 - 34. (Cancelled)

35. (Previously Presented) The production quantity management system according to claim 20,

wherein said calculating system further determines:

an actual inventory quantity of the at least one factory for a start of the (t+1)-th cycle based on an actual inventory quantity of the at least one factory for an end of the current cycle t;

a (t+1)-th cycle adjustment assembly quantity based on said (t+1)-th cycle standard inventory quantity of the at least one factory, a (t+1)-th cycle expected assembly quantity of the at least one factory which has been determined at the (t-1)-th cycle, said determined actual inventory quantity of the at least one factory for the start of the (t+1)-th cycle, and said (t+1)-th cycle shipment quantity of the at least one factory; and

a (t+1)-th cycle total assembly quantity of the at least one factory by adding said (t+1)-th cycle adjustment assembly quantity to said (t+1)-th cycle expected assembly quantity of the at least one factory.

36. (Original) The production quantity management system according to claim 20, wherein the predetermined cycle is a week.

37. (Original) The production quantity management system according to claim 20,

wherein said management center is located in the single delivery center and is connected to the plurality of storing systems located in the at least one factory through a network.

38. (Original) The production quantity management system according to claim 20,

wherein said management center is located in a site which is different from the at least one factory and the single delivery center, and is connected to the plurality of storing systems located in the at least one factory and the single delivery center through a network.